

## **REMARKS**

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application and indicating that claims 3-5, 10, 11, 13-16, and 25 contain allowable subject matter.

### **I. Disposition of Claims**

Claims 1-53 are pending in this application. Claims 1, 11, 24, 28, 40, and 45 are independent. The remaining claims depend, directly or indirectly, from claims 1, 11, 24, 28, 40, and 45.

### **II. Amendments to the Claims**

Claim 11 has been amended to include all of the limitations of claim 1. Amended claim 11 is now independent. The amendment to claim 11 does not constitute new matter. Claims 17-19 have been amended to depend from claim 11 instead of claim 1. The amendments to claims 17-19 do not constitute new matter.

### **III. Rejection(s) under 35 U.S.C § 102**

#### **CLAIMS 1, 2, 6-9, 12, AND 51-53**

Claims 1, 2, 6-9, 12, and 51-53 were rejected under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 6,318,156 ("Dutton"). Claim 12 has been amended to depend from claim 11, which was found by the Examiner to be allowable. Thus, the rejection to claim 12 is moot. With respect to the original claims, this rejection is respectfully traversed.

Claim 1 recites a method for automated management of hydrocarbon gathering. The method comprises collecting data from a plurality of automated measurement and control devices in a hydrocarbon gathering system. The collected data is compared to data stored in a database. The data comparison is used to automatically schedule a test of at least one of the automated measurement and control devices. Testing of the automated measurement and control devices helps to assure that measurement accuracy is maintained.

Dutton discloses an automated Coriolis-based well test system. The well test system uses a plurality of meters and devices to provide volumetric flow rates of oil mixed with water (column 3, lines 50-61). The Examiner asserts that Dutton discloses comparing the collected data with data stored in a database and that the data comparison is used to automatically schedule testing. The Applicant respectfully disagrees. In fact, the section referenced by the Examiner concerning a database does not refer to a database. The referenced section is concerned with the manner in which to determine the dry gas density of a gas in a multiphase fluid (column 9, lines 26-31). The determination may be calculated based on correlations between pressure and temperature. The other proposed manner for determining density is to measure it directly. Dutton is silent on the use of a database.

In addition, Dutton does not show or suggest using any data comparison to schedule testing of at least one of the plurality of automated measurement and control devices. The test discussed in Dutton refers to the testing performed by the automated measurement and control device (column 12, lines 41-47). The test executed by the controller provides production volumes over a test interval (column 12, lines 35-40).

In view of the above, Dutton fails to show or suggest the present invention as recited in claim 1. Thus, claim 1 is patentable over Dutton. Dependent claims 2, 6-9, 12, and 51-53 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

CLAIMS 24, 26, AND 27

Claims 24, 26, and 27 were rejected under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 6,128,579 ("McCormack"). This rejection is respectfully traversed.

Claim 24 recites a method for the automated management of hydrocarbon gathering, that includes collecting well test data from at least one of a plurality of producing wells in a hydrocarbon gathering system, and using the well test data to automatically reallocate hydrocarbon production to at least one of the plurality of producing wells. Thus, claim 24 provides for the automatic reallocation of hydrocarbon production based on well test data.

McCormack discloses a specific mathematical technique to produce a material balance solution of a hydrocarbon reservoir by optimizing fluid allocation factors for each well (column 2, line 66 to column 3, line 2). The reservoir has injection and production wells. The method is based on randomly generated allocation factors. The allocation factors represent the fraction of fluid injected into or produced from a well pattern (column 3, lines 6-7). The calculation of allocation factors may be constrained by well data (column 9 line 63, column 10 line 11), but this data is only used in calculating the material balance solution. The method in McCormack automatically *optimizes estimates* for the allocation factors to produce a material balance solution, but does not automatically *reallocate production* based on *well test data*.

In view of the above, McCormack fails to show or suggest the present invention as recited in claim 24. Thus, claim 24 is patentable over McCormack. Dependent claims 26 and 27 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

**Rejection(s) under 35 U.S.C § 103**

CLAIMS 28 AND 31-50

Claims 28 and 31-50 were rejected under 35 U.S.C. § 103 as obvious over McCormack in view of Dutton. This rejection is respectfully traversed.

**Claim 28**

Claim 28 recites calculating a system balance for a selected balance envelope. This calculation may be achieved by any method known in the art. Hydrocarbon sample test data is then collected from at least one of a plurality of automated measurement and control devices positioned in a hydrocarbon gathering system. The hydrocarbon sample test data is used to automatically recalculate the system balance.

As discussed with respect to claim 24, McCormack discloses a method for material balancing of a reservoir through the use of randomly generated allocation factors. Constraints may be placed on the allocation factors based on well data, but McCormack neither shows nor suggests that well data may be gathered automatically to calculate a material balance. Well test data is only used to constrain the allocation factors that are used in calculating a material balance in McCormack.

Dutton merely suggests an example of an automated measurement system that can reduce the need for manual testing of the well. Dutton neither shows nor suggests using the automated measurement system in the manner suggested by the present invention.

Using a plurality of automated measurement systems to automatically calculate a mass balance, as recited in claim 28, provides a solution to the need to regularly calculate the mass balance of a balance envelope. Neither McCormack nor Dutton show or suggest the automatic calculation of a mass balance based on well test data. Therefore, McCormack and Dutton, whether considered separately or in combination, fail to show or suggest the present invention as recited in claim 28.

**Claim 40**

Claim 40 recites calculating a system balance for a selected balance envelope as in claim 28. Testing is performed on at least one of a plurality of automated measurement and control devices positioned in a hydrocarbon gathering system. The test data is used to automatically recalculate the system balance. As discussed with respect to claim 28, neither McCormack nor Dutton show or suggest a plurality of automated measurement and control devices. McCormack is silent on the testing of any measurement and control device, automated or not. Therefore, McCormack and Dutton, whether considered separately or in combination, fail to show or suggest the present invention as recited in claim 40.

**Claim 45**

Claim 45 recites calculating a *composition of hydrocarbon flow in a hydrocarbon gathering system*. Then, hydrocarbon sample test data is collected from a plurality of automated measurement and control devices positioned in the hydrocarbon gathering system. The hydrocarbon sample test data is used to automatically recalculate the composition of hydrocarbon flow in the hydrocarbon gathering system.

The Examiner has not suggested that McCormack discloses calculating a

composition of hydrocarbon flow in a hydrocarbon gathering system. Dutton merely discloses an automatic measurement system without suggesting the manner in which a plurality may be used as recited in claim 45. Therefore, McCormack and Dutton, whether considered separately or in combination, fail to show or suggest the present invention as recited in claim 45.

In view of the above, McCormack and Dutton fail to show or suggest the present invention as recited in claims 28, 40, and 45. Thus, claims 28, 40, and 45 are patentable over McCormack and Dutton. Dependent claims 31-39, 41-44, and 46-50 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

CLAIMS 17-23

Claims 17-23 were rejected under 35 U.S.C. § 103 as obvious over Dutton in view of U.S. Patent No. 6,456,902 ("Streetman"). Claims 17-19 have been amended to depend from claim 11, which has been found to be allowable. Thus, claims 17-19 and claims 20-23, which depend from claim 19, are patentable for at least the same reasons as claim 11. Accordingly, withdrawal of this rejection is respectfully requested.

CLAIMS 29 AND 30

Claims 29 and 30 were rejected under 35 U.S.C. § 103 as obvious over McCormack in view of Dutton and Streetman. This rejection is respectfully traversed.

As discussed with respect to claim 28, McCormack and Dutton fail to show or suggest the present invention as claimed. Streetman, whether considered separately or in combination, does not provide that which McCormack and Dutton lack with respect to claim 28. As stated by the Examiner, neither McCormack nor Dutton disclose using a

recalculated system balance to mix hydrocarbon products from at least two gathering pipelines to produce a desired hydrocarbon flow composition. Streetman merely discloses that mixing production is a common practice. Streetman is silent on creating a desired hydrocarbon flow composition. Streetman only provides that small amounts of production were typically combined to provide a sufficiently marketable quantity of hydrocarbon production for sale to a consumer.

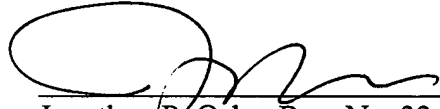
In view of the above, McCormack, Dutton, and Streetman fail to show or suggest the present invention as recited in claim 28. Thus, the claims are patentable over McCormack, Dutton, and Streetman. Dependent claims 29 and 30 are allowable for at least the same reasons and those stated above. Accordingly, withdrawal of this rejection is respectfully requested.

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 06558/005001).

Date: \_\_\_\_\_

*4/16/04*

Respectfully submitted,



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